

**ABSTRACT**

**METHOD AND APPARATUS FOR BAND-TO-BAND  
TRANSLATION IN A WIRELESS COMMUNICATIONS SYSTEM**

A translator for translating RF signals from one wireless frequency  
5 band to another wireless frequency band in a wireless communications  
system including a base station, a remote antenna, and remote customer  
premises equipment. The base station is an existing legacy base station,  
such as a PCS base station, modified to include a translator for translating  
RF signals in a first wireless frequency band to RF signals in a second  
10 wireless frequency band. The base station transmits RF signals in the  
second band to a remote antenna, which includes a translator for  
translating the RF signals in the second band back to RF signals in the  
first band. The remote antenna may be located in a building or  
neighborhood with a coverage area as small as a picocell. A CPE (such  
15 as a mobile phone) communicates with the antenna in a first wireless  
frequency band, and the antenna communicates with the base station in a  
second wireless frequency band.